

Braun Corporation FMVSS No. 403 Quick Reference Installation Sheet 34274 Rev: A

"DOT — Public Use Lift"

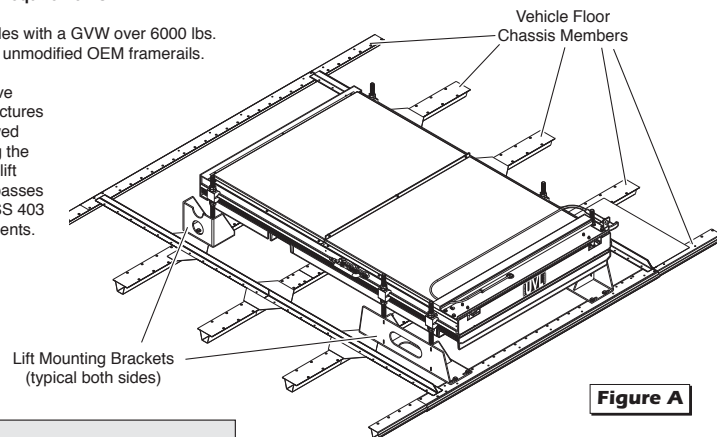
NHTSA Vehicle Physical Requirements

"DOT - Public Use Lift" verifies this platform lift meets the "public use lift" requirements of FMVSS No. 403. This lift may be installed on all vehicles appropriate for the size and weight of the lift, but must be installed on buses, school buses, and multi-purpose passenger vehicles other than motor homes with a gross vehicle weight rating (GVWR) that exceeds 4,536 kg (10,000 lb).

Vehicle Requirements:

All vehicles with a GVW over 6000 lbs. and with unmodified OEM framersails.

Alternative floor structures are allowed providing the installed lift system passes all FMVSS 403 requirements.



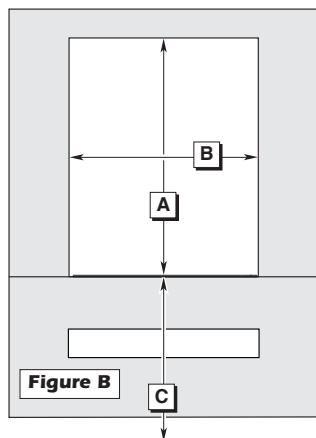
Mounting Bracket Requirements:

All four mounting brackets must be connected to the vehicle chassis floor members.

Door Opening Dimensions:

Vehicle lift access door opening must meet specified dimensions.

	NUVL855RM24
A Minimum Clear Door Opening Height	NA
B Clear Door Opening Width	43½"
C Maximum Floor-to-Ground	62½"



1 Locate Lift Mounting Brackets

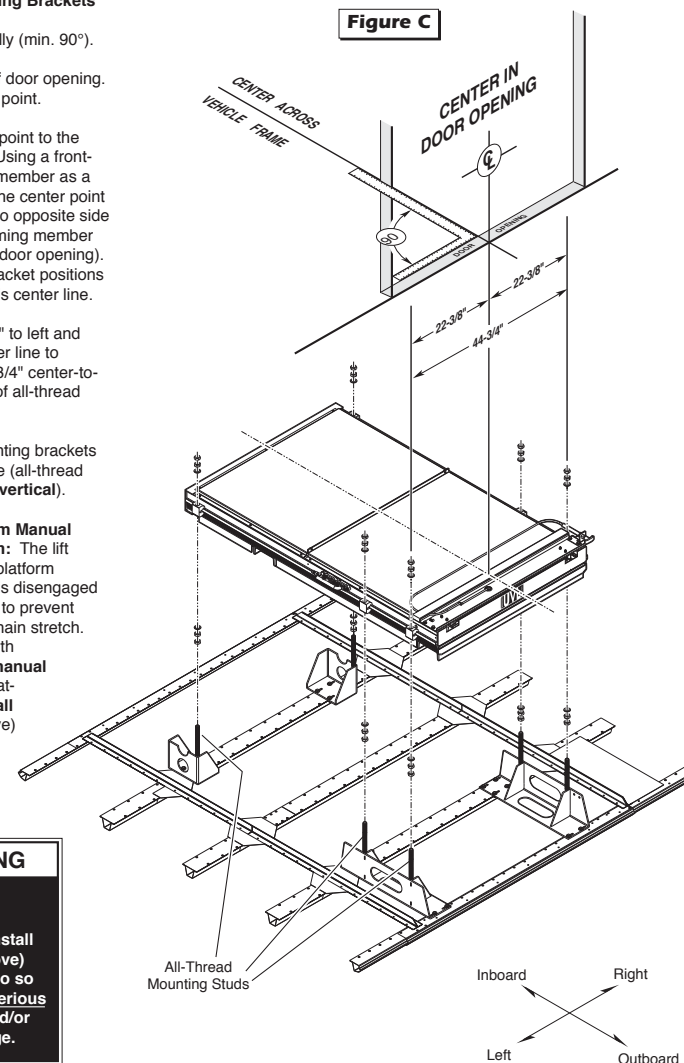
Locate Lift Mounting Brackets

1. Open door(s) fully (min. 90°).
2. Locate center of door opening. Mark the center point.
3. Transfer center point to the vehicle frame. Using a front-to-rear framing member as a guide, transfer the center point across chassis to opposite side front-to-rear framing member (must be 90° to door opening). Lift mounting bracket positions are based on this center line.
4. Measure 22-3/8" to left and right of the center line to achieve the 44-3/4" center-to-center spacing of all-thread mounting studs.
5. Clamp the mounting brackets securely in place (all-thread studs must be vertical).

Engage Platform Manual Release System: The lift cable-activated platform manual release is disengaged during shipment to prevent potential drive chain stretch. Handle the lift with care. **Engage manual release before attempting to install (raise, tilt or move) the lift.**

⚠ WARNING

Engage manual release before attempting to install (raise, tilt or move) lift. Failure to do so may result in serious bodily injury and/or property damage.



2 Secure Lift

1. Attach Mounting Brackets to Vehicle Framing Members

Position lift mounting brackets as detailed in Step 1 (see Figures C, D and F). Oval slotted mounting holes are provided in the mounting brackets to allow adjustment. **Carefully** drill 21/64" (.328") diameter mounting holes at the center of the oval mounting slots (holes may be present).

Twenty 5-16-18 x 1" hex bolts are supplied for bolting the lift mounting brackets to the vehicle framing member (four per inboard bracket and six per outboard bracket).

Place a flat washer onto each mounting bolt. Insert bolts through mounting bracket, vehicle floor and framing member as shown in Figure D. Installation is typical for all brackets (outboard brackets require 6 mounting bolts each).

All fasteners **must** meet FMVSS 571.403 Section 6.3.

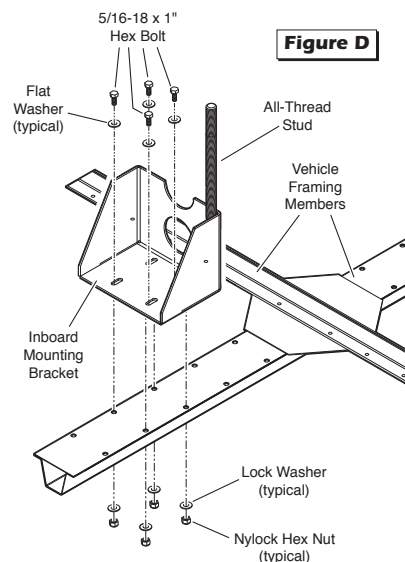


Figure D

2. Position and secure lift.

Thread two 3/4" hex jam nuts fully onto each mounting bracket all-thread stud. Place one large diameter flat washer onto each all-thread stud. See Figures G and H.

Carefully position lift in vehicle (aligned with mounting brackets). Position (slide) the six lift mounting clamps along the sides of the lift housing until aligned with mounting bracket all-thread studs. See Figure F. Lower lift onto mounting bracket studs

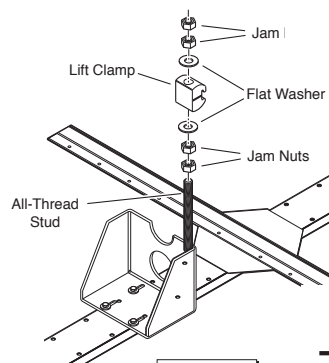


Figure E

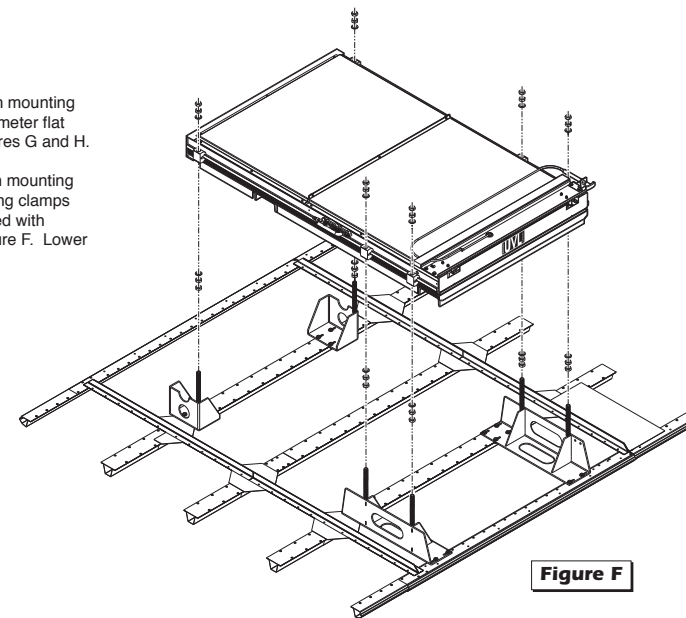


Figure F

3. Height Adjustment

The lift outer barrier **must be aligned with the vehicle access hole.**

The lift housing **must be aligned with vehicle chassis (level).** Adjust the 3/4" hex jam nuts on the all-thread mounting studs at all 4 corners of the lift until dimensions A, B, C and D are equal (within 1/16"). See Figure G.

Place one large diameter flat washer onto each mounting bracket all-thread stud. Thread two 3/4" hex jam nuts fully onto each all-thread stud (against lift mounting clamp).

In-Out Positioning

Position the lift to achieve a 2" overlap between the deployed inboard barrier and the vehicle floor.

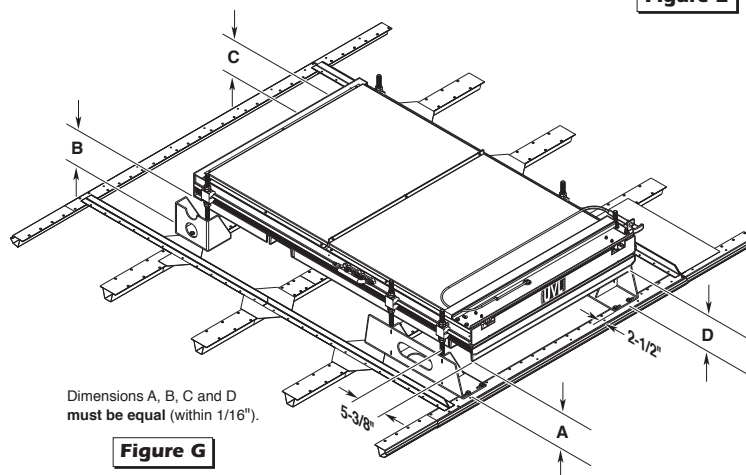


Figure G

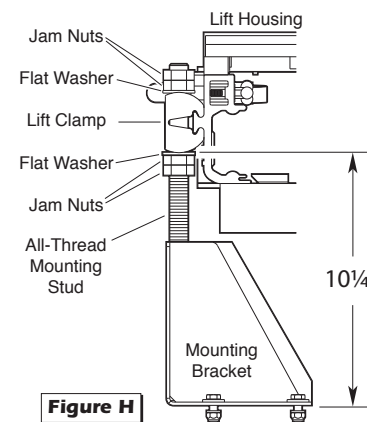


Figure H

4. Horizontal Adjustment

Shift lift and mounting brackets left-to-right as needed (lift must be centered in door opening). **Tighten the 5/16" bolts** securing mounting brackets (shown in Figure D) to the frame.

Torque Specifications: 20 foot pounds.

Tighten upper set of 3/4" hex jam nuts (with flat washer) down to the lift mounting clamps. **Tighten jam nuts.**

Torque Specifications: 100 to 120 foot pounds.

Shipping Block Removal:

Wood blocks are placed in the lift housing to prevent lift damage during shipment. **Remove shipping blocks** from platform and carriage **before running (activating) lift.** Refer to **Shipping Block Removal Instruction 28942.**

3 Electrical, Hydraulic and Interlock

Pump Module Mounting

Mount the pump module case to the inner wall of the adjacent storage compartment as shown in Figure I.

Check for obstructions before drilling, cutting holes or installing mounting hardware.

Note: Locate and drill hydraulic hose, wiring harness and manual release cable access holes before mounting pump. A 3" diameter plastic grommet may be used (supplied).

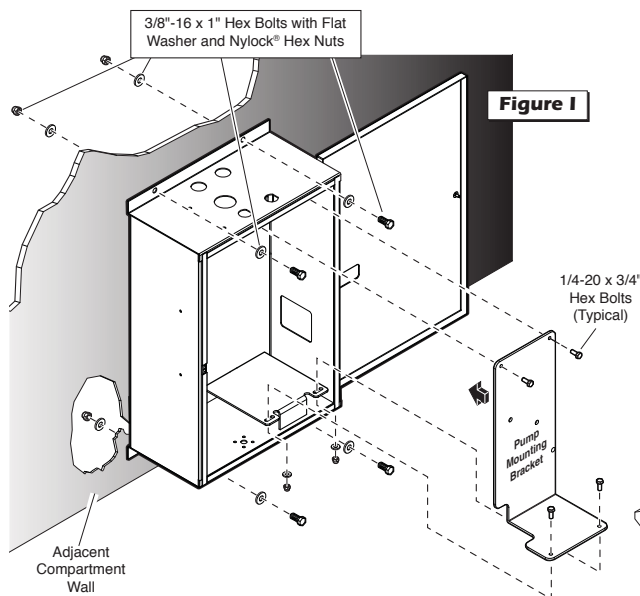


Figure I

Pump Ground Cable:

One ground cable is pump mounted. Connect cable to a vehicle framing member (see Figure J).

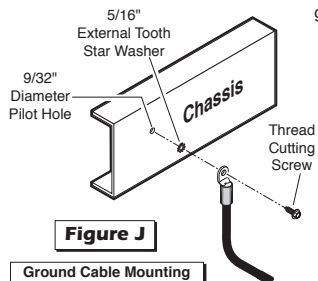


Figure J

Ground Cable Mounting

Vehicle Battery Ground Cable:

A ground cable (minimum 2 gauge) must be connected from vehicle battery negative post to the same vehicle framing member the pump ground cable is attached to.

Ground Cable Corrosion: When mounting ground cables, remove undercoating, dirt, rust, etc. from framing member around mounting holes. Apply protective coating to mounting holes to prevent corrosion. **Failure to do so will void warranty of certain electrical components.**

Hydraulics:

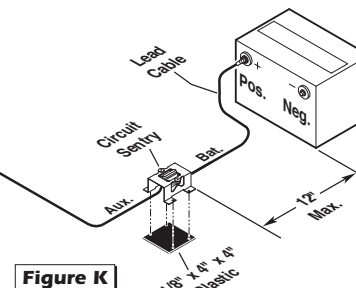
Remove the plug from 1/4" diameter clear vent tube. See Figure L.

Route hydraulic hose assembly through compartment wall to quick-disconnect fitting at lift. Connect hose.

Circuit Sentry:

Install Circuit Sentry as shown in Figure K. Attach power cable and lead cable as detailed.

Figure K



Calibration and Floor Level Adjustment

Following electrical, hydraulic and interlock installation, check calibration and floor level adjustments as defined in Panel 4.

Vehicle and Lift Interlocks

The pump module is equipped with a lift interface 9-circuit connector (female socket). A mating 9-circuit connector (male plug) is supplied. To meet **minimum** NHTSA requirements, connect to vehicle interlock harness as outlined in Figure L (Steps 1-4).

Note: All wiring harness connections must be inside the pump module box.

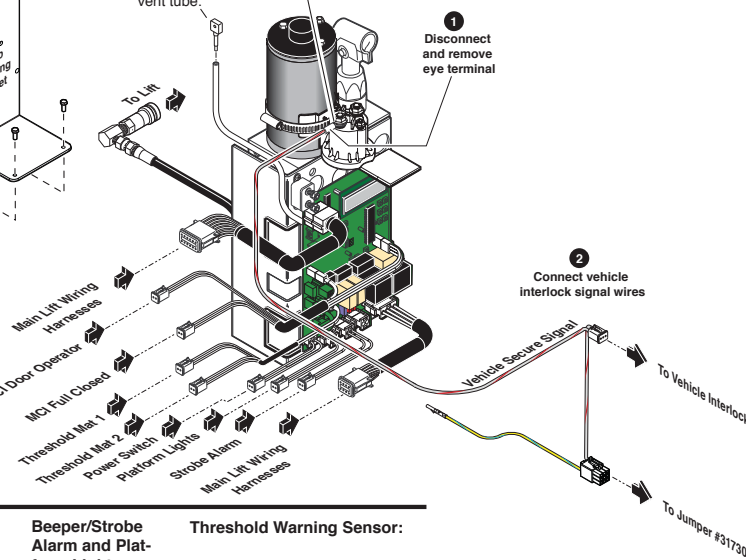


Figure L

Housing/Carriage Harnesses:

Route two main wiring harnesses from lift to pump module. Connect to mating harnesses at pump.

Beeper/Strobe Alarm and Platform Lights:

Connect harnesses to mating harnesses at pump module.

Threshold Warning Sensor:

Connect both threshold sensor mat harnesses to mating Y-harness at pump module (labeled). Both mats must be installed on a flat rigid surface.

Inboard edge of inboard mat must be minimum 18" from edge of finished floor or stepwell.

4 Calibration and Floor Level Adjustment

Platform Sense Calibration

1. There must be **no weight on platform**.
2. Press hand-held pendant UP switch to raise platform a minimum 3" above stow level.
3. Press and hold control board 50# CAL. button. While pressing the 50# CAL. button, press and hold the hand-held pendant STOW switch (button). The platform will lower to stow level (begin stow function), and then start to raise. Release 50# CAL. button immediately when platform starts to raise from stow level.
4. After calibration, the LCD screen should read "PF OCCUPIED" whenever there is 50 lbs. or more present on the platform. The 50 pound platform sensing is now calibrated.

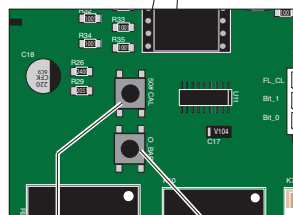
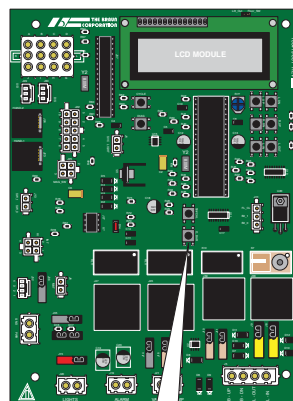
Ground Sense Calibration

1. Press hand-held pendant DOWN switch to lower platform fully to ground level.
2. While continuing to press the pendant DOWN switch, press and then release the control board O_BAR GND. button.
3. Release the pendant DOWN switch. Ground level sensing is now calibrated.

Outer Barrier Occupied Calibration

1. Press hand-held pendant DOWN switch to lower platform fully to ground level.
2. Once outer barrier is fully unfolded (ramp position), release the pendant DOWN switch.
3. Press and hold the control board O_BAR GND. button. While holding O_BAR GND. button, press hand-held pendant UP switch to raise the outer barrier. Be sure to release O_BAR GND. button when outer barrier reaches approximately half full up (vertical) position.
4. After calibration, the LCD screen should read "OUT-BAR OCCUPIED" whenever there is weight present on the outer barrier.

NUVL855RM24 Control Board



50# CAL Button

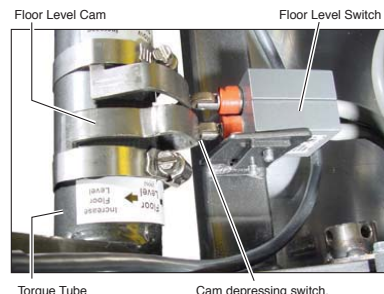
O_BAR GROUND LVL Button

Floor Level Switch

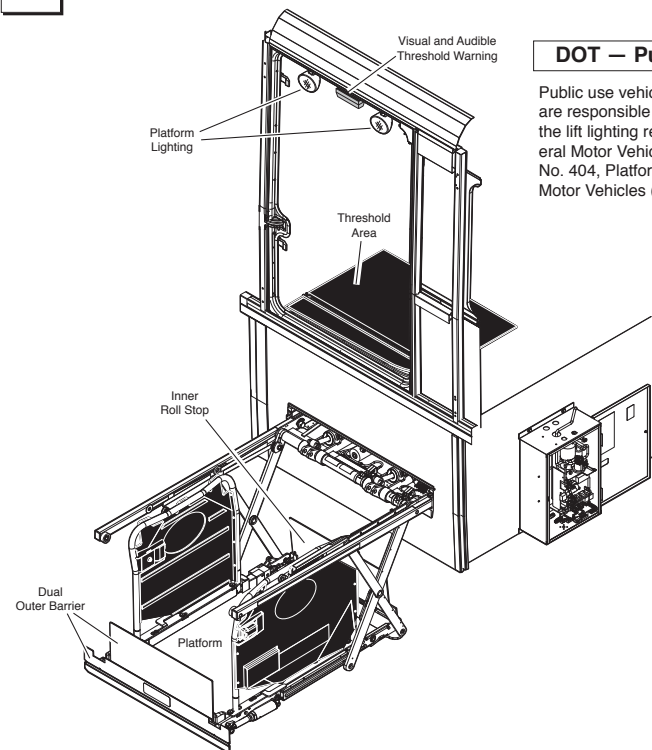
The Floor Level switch stops upward travel of the platform during the Up function (activated by the torque tube-mounted Floor Level cam). Position the lift platform 1" above floor level **using the manual operation system** (detailed on opposite side of this sheet). Loosen the clamp securing the torque tube-mounted Floor Level cam. Rotate the cam until the Floor Level switch is activated (cam depresses switch).

Note: Check the floor level position of the platform and the inner roll stop after powering the pump. Hydraulic pressure may affect platform height slightly. Fine tuning adjustment (tweaking) of the Floor Level switch may be required.

The inner roll stop must rest properly on the vehicle floor when the lift is deployed. Adjust the inner roll stop **only** if necessary (refer to the service manual).



5 FMVSS 403/404 Certification Checklist



DOT — Public Use Lift

Public use vehicle manufacturers are responsible for complying with the lift lighting requirements in Federal Motor Vehicle Safety Standard No. 404, Platform Lift Installation in Motor Vehicles (49 CFR 571.404).

The operations listed below must be functionally verified.

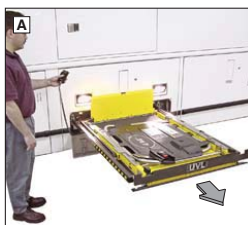
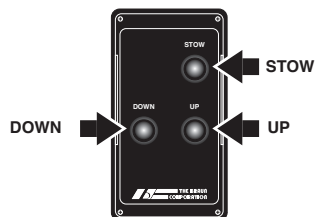
- | | |
|---|---|
| <input type="checkbox"/> Vehicle movement is prevented unless the lift door is closed, ensuring the lift is stowed. | <input type="checkbox"/> The outer barrier will not raise if occupied. |
| <input type="checkbox"/> Lift operation shall be prevented unless the vehicle is stopped and vehicle movement is prevented. | <input type="checkbox"/> A visual and audible warning will activate if the threshold area is occupied when the platform is at least one inch below floor level. |
| <input type="checkbox"/> The platform will not fold/stow if occupied. | <input type="checkbox"/> Platform movement is prohibited beyond the position where the inner roll stop is fully deployed (up). |
| <input type="checkbox"/> The inner roll stop will not raise if occupied. | <input type="checkbox"/> Lift platform movement shall be interrupted unless the outer barrier is deployed (up). |
| <input type="checkbox"/> Verify platform lighting when lift is deployed and pendant illumination when lift is powered. | |

Lift Operating Instructions

In the event of power failure, refer to the Manual Operating Instructions to operate the lift.

Hand-held Pendant Control:

The hand-held attendant's pendant control is equipped with three push button switches (STOW, DOWN and UP). The momentary switches activate the automatic lift functions. Simply press the switch labeled for the intended function. When there is power to the lift, the lift function labels illuminate to identify the functions.



Lift stops just below door.

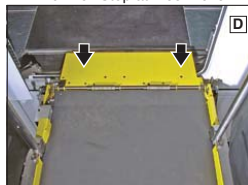


TO DEPLOY PLATFORM:

1. **Stand Clear** and press the UP switch until the platform stops (extends **fully**). Release Switch.
2. Lift handrail latch handles, deploy handrails up to vertical position and lower latch handles fully. See Handrail Operating Instructions.
3. Lift outer barrier to vertical position. See Handrail Operating Instructions. See Photo B.
4. Latch the handrail belt (see Photo B).
5. Press the UP switch until the platform stops (just below the door opening). Release switch.
6. Open bus door fully.
7. Press the UP switch until the platform stops (raises to **floor level**) and the inner roll stop unfolds **fully** to floor level position. Release switch. See Photo D.

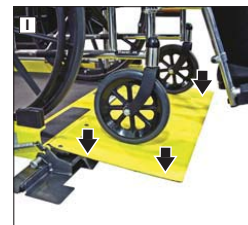


Inner Roll Stop at Floor Level

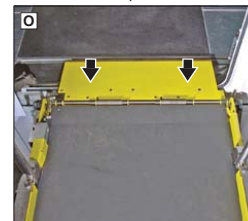


TO UNLOAD PASSENGER:

1. **Read Note below!** Load passenger onto platform and **lock** wheelchair brakes.
- Note:** Passenger must be positioned **fully inside yellow boundaries** and outer barrier must be UP.
2. Press DOWN switch until platform stops (just below the door opening - as shown in Photo G). Release switch.
3. Close bus door fully.

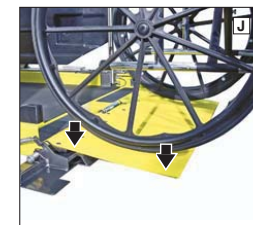


Inner Roll Stop at Floor Level



TO STOW PLATFORM:

1. Latch handrail belt. See Photo B.
2. Press the STOW switch until platform stops at **stow level**. Release switch.
3. Unlatch handrail belt.
4. Fold tall outer barrier down to platform (horizontal) position.
5. Lift handrail latch handles, stow handrails down to platform (horizontal) position and lower latch handles fully.
6. Press the STOW switch until the platform stops (retracts fully).



4. Press the DOWN switch until the **entire** platform reaches ground level and both outer barriers **unfold fully** (ramp position). Release switch. See Photo G.

5. Unlatch handrail belt, unlock wheelchair brakes and unload passenger from platform.

Note: Outer barriers must be **fully unfolded** (ramp position) until the entire wheelchair (or standee) has crossed both outer barriers. See Photos I and J.

TO LOAD PASSENGER:

1. **Read Notes below!** Load passenger onto platform, **lock** wheelchair brakes and latch handrail belt.

Note: Outer barriers must be **fully unfolded** (ramp position) until the entire wheelchair (or standee) has crossed both outer barriers. See Photos I and J.

Note: Passenger must be positioned **fully inside yellow boundaries**.

2. Press the UP switch to fold both outer barriers up **fully** (vertical) and raise the platform until the platform stops. Release switch.

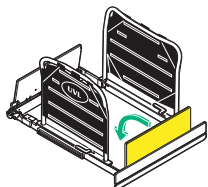
Note: Platform will stop just below the door opening.

3. Open bus door fully. See Photo N.
4. Press the UP switch until the platform stops (raises to **floor level**) and the inner roll stop unfolds **fully** to floor level position. Release switch.
5. Unlock wheelchair brakes and unload passenger from platform.

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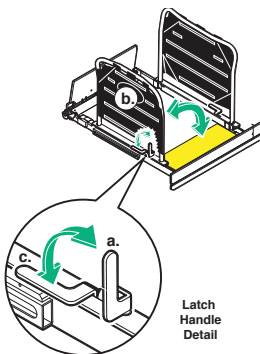
Handrail Operating Instructions

1. Fold tall (yellow) outer barrier down.

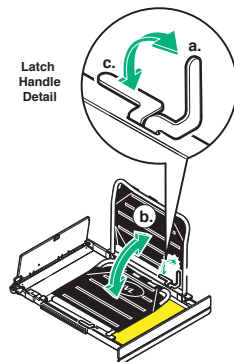


Note: Order of procedures shown is for stowing lift. To deploy handrails and barrier after extending the platform, reverse order of procedures.

2. a. Lift latch handle.
b. Deploy / Stow handrail.
c. Lower latch handle.

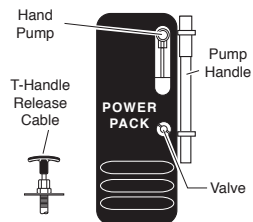


3. a. Lift latch handle.
b. Deploy / Stow handrail.
c. Lower latch handle.



Manual Operating Instructions

Familiarize yourself with the components necessary to manually operate the lift. The T-handle release cable releases and engages the lift platform to allow the platform to be manually extended and retracted. The manual back-up pump (hand pump) is used to manually lower and raise the extended platform.



Cable Activated Platform Manual Release System: A cable-activated manual release system releases and engages the platform carriage assembly drive chain to allow the platform carriage assembly to be manually moved out (extended) or moved in (retracted) as needed. A T-handle is provided on the release cable for activation of the manual release system (details follow).

After manually moving the platform in or out, it is extremely important that the cable-activated manual release is positively re-engaged to secure (lock) the platform carriage assembly before loading a passenger on the platform or before driving the vehicle.

After manually releasing platform, push manual release T-handle in fully and ensure platform is locked before driving lift vehicle.

Uncontrolled and unintentional platform deployment (inadvertent platform ejection) may result in serious bodily injury and/or property damage.



OUT (TO EXTEND PLATFORM):

1. Pull T-Handle.
2. Turn T-Handle to lock platform in released position.
3. Pull platform out.
4. Turn T-Handle.
5. Push T-Handle in.
6. Grasp outer barrier and attempt to move platform in and out until the platform locks (feel release mechanism engage).

DOWN (TO LOWER PLATFORM):

Using hand pump handle, open hand pump valve (turn counter-clockwise). Open 1/2 turn only.

DOWN (TO UNFOLD OUTER BARRIER):

1. Remove hairpin cotter from detent pin.
2. Remove detent pin.
3. Unfold (rotate) barrier down.

UP (TO FOLD OUTER BARRIER):

1. Fold (rotate) barrier up.
2. Insert detent pin.
3. Insert hairpin cotter in detent pin.

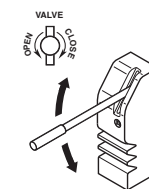
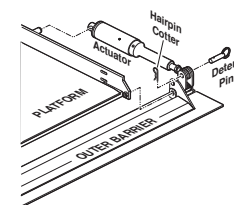
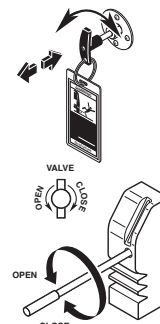
UP (TO RAISE PLATFORM):

- Using hand pump handle:
1. Close hand pump valve (turn clockwise).
 2. Insert handle in pump and stroke.

Note: Close valve before operating electric pump.

IN (TO STOW PLATFORM):

1. Raise or lower platform to stow level (follow UP or DOWN procedures).
2. Pull T-Handle.
3. Turn T-Handle to lock platform in released position.
4. Push platform in.
5. Turn T-Handle.
6. Push T-Handle in.
7. Grasp outer barrier and attempt to move platform in and out until the platform locks (feel release mechanism engage).



Maintenance and Lubrication

Proper maintenance is necessary to ensure safe, trouble-free operation. Inspecting the lift for any wear, damage or other abnormal conditions should be a part of all transit agencies's daily service program. Simple inspections can detect potential problems.

The maintenance and lubrication procedures specified in the following schedule **must** be performed by a Braun authorized service representative at the scheduled intervals according to the number of cycles. NHTSA NUVL Series lifts are equipped with a cycle counter (digital display built into the electronic control board).

NUVL Series lifts are equipped with hardened pins and self-lubricating bushings to decrease wear, provide smooth operation and extend the service life of the lift.

When servicing the lift at the recommended intervals, inspection and lubrication procedures specified in the previous sections should be repeated. **Clean** the components and the surrounding area **before applying lubricants**. LPS2 General Purpose Penetrating Oil is recommended where Light Oil is called out. Use of improper lubricants can attract dirt or other contaminants which could result in wear or damage to the components. Platform components exposed to contaminants when lowered to the ground may require extra attention.

Lift components requiring grease are lubricated during assembly procedures. When replacing these components, be sure to apply grease during installation procedures. Specified lubricants are available from The Braun Corporation (part numbers below).

All listed inspection, lubrication and maintenance procedures should be repeated at "750 cycle" intervals following

the scheduled "4500 Cycles" maintenance. These intervals are a general guideline for scheduling maintenance procedures and will vary according to lift use and conditions. Lifts exposed to severe conditions (weather, environment, contamination, heavy usage, etc.) may require inspection and maintenance procedures to be performed more often than specified.

Maintenance Indicator:

A Lift Ready green LED is mounted on the hand-held pendant storage bracket. The green LED will change color to yellow after every 750 cycles. The yellow LED will not affect the functions of the lift, but is a reminder to perform necessary maintenance and lubrication procedures.

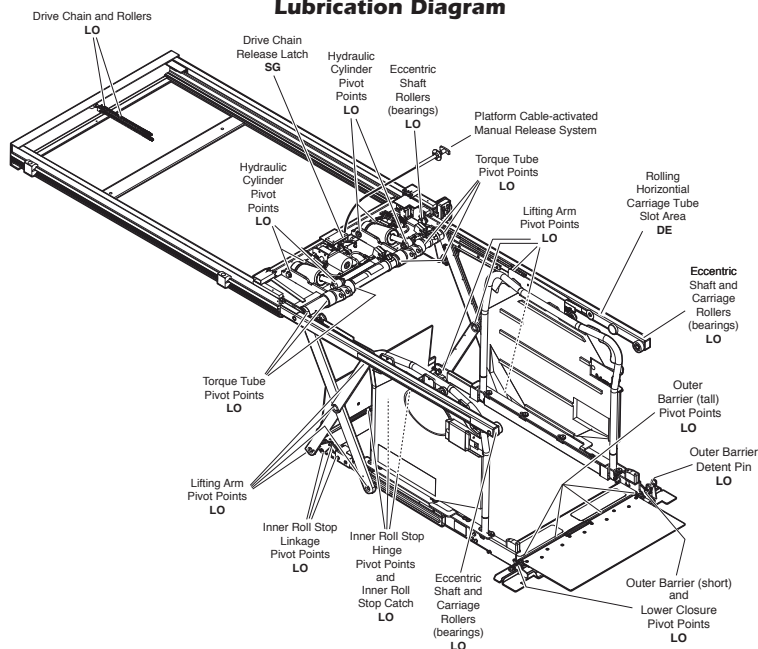
Once the lift has been serviced, press the CYCLE button (located below LCD display on the control board) until the Lift Ready LED changes back to green. The CYCLE button also clears the lift cycle count (since last service) but not the lifetime cycle count.

Discontinue lift use immediately if maintenance and lubrication procedures are not properly performed, or if there is any sign of wear, damage or improper operation. Contact your sales representative or call The Braun Corporation at 1-800-THE LIFT®. One of our national Product Support representatives will direct you to an authorized service technician who will inspect your lift.

⚠ WARNING

Maintenance and lubrication procedures must be performed as specified by an authorized service technician. Failure to do so may result in serious bodily injury and/or property damage.

Lubrication Diagram



Lubricant	Type	Specified (recommended) Lubricant	Available Amount	Braun Part No.
LO - Light Oil	Light Penetrating Oil (30 weight or equivalent)	LPS2, General Purpose Penetrating Oil	11 oz. Aerosol Can	15807
DE - Door-Ease	Stainless Stick Style (tube)	Door-Ease Stick (tube)	1.68 oz.	15806
SG - Synthetic Grease	Synthetic Grease (Multipurpose)	Mobiltemp SHC32	12.5 oz. Tube	28598

750 Cycles

Outer barrier and lower closure pivot points (2)	Apply Light Oil - See Lubrication Diagram
Outer barrier detent pin pivot points (2)	Apply Light Oil - See Lubrication Diagram
Inner roll stop hinge pivot points	Apply Light Oil - See Lubrication Diagram
Inner roll stop linkage pivot points	Apply Light Oil - See Lubrication Diagram
Lifting arm center and platform pivot points (bearings at all points)	Apply Light Oil - See Lubrication Diagram
Inspect outer barrier and lower closure for proper operation	Correct or replace damaged parts.
Inspect outer barrier seal and lower closure gasket	Resecure, replace or correct as needed
Inspect outer barrier detent pin hairpin cotter	Ensure hairpin cotter is present and can be removed and inserted easily. Resecure, replace or correct as needed.
Inspect lift for wear, damage or any abnormal condition	Correct as needed.
Inspect lift for rattles	Correct as needed.
Check drive chain tension.	Pull out and lock manual release cable. Adjust chain tension as needed. See Drive Chain Adjustment.
Inspect inner roll stop (bridge plate) and linkage for: • Proper operation. Roll stop should rest solidly on floor providing smooth transition. • Positive securement • Wear or damage	Resecure, replace or correct as needed. See Inner Roll Stop Adjustment Instructions.
Check carriage ride height in housing	Adjust as needed. See Carriage Ride Height Adjustment.
Check stow height/lifting arm alignment	Lifting arms should be horizontal, aligned with each other and aligned with carriage. Adjust as needed. See Switch Adjustment (Below Stow Switch).
Inspect wiring harnesses for securement, wear or other damage	Resecure, replace or correct as needed
Check lower pan securement	Resecure, replace damaged parts or correct as needed.
Torque tube pivot bearings (4 places)	Apply Light Oil - See Lubrication Diagram

Maintenance and Lubrication

**1500
Cycles**

**4500
Cycles**

Consecutive 750 Cycle Intervals

Drive Chain Adjustment

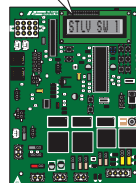
Drive Chain Adjustment
In event the drive chain sags 1/2" or more, adjust tension as detailed.

1. Tighten to eliminate visible sag but do not overtighten.
2. Remove bottom pan.
3. Pull the manual release cable and lock.
4. Remove adjustment bolt (tensioner) access cover.
5. Loosen inside jam nut. Secure tensioner and tighten outside jam nut. Tighten to eliminate visible chain sag but do not overtighten.
6. Lock jam nuts together making sure the tensioner roller is horizontal. Release and push the manual cable in fully. Ensure platform is locked by moving the platform in and out until chain release assembly engages chain.

Carriage Ride Height Adjustment

The carriage horizontal arms move (roll) in and out of the housing tracks on roller bearings. Following installation or extensive lift operation, clearance between horizontal arms and tracks may diminish. The eccentric shaft mounting plate allows height adjustment.

Remove eccentric plate mounting screw. Using screwdriver or small rod, rotate the shaft clockwise to increase carriage height. Rotate the shaft counterclockwise to decrease carriage height. Reinstall mounting screw in nearest retainer hole. Adjust left and right side eccentric shafts (screw positions may vary from side to side). Adjust height such that horizontal arms do not contact top or bottom of tracks (align center). For Calibration procedures and Floor Level Adjustment, see Panel 4 on reverse side.



Diagnostics: Following installation, verify all lift functions and ensure that the control board correctly registers the values listed below when the corresponding action is taken. "1" will appear on the LCD screen as shown in the Illustration at right. If any other value appears on the LCD screen during the specific diagnostic procedure, verify that the correct harness is properly connected to both the control board and the associated lift harness. Repeat the harness

diagnostic procedure. If an incorrect value is still present after checking the harness and connections, contact The Braun Corporation Product Support Department at 1-800-THE-LIFT®.

All basic functions (UP, DOWN, DOOR and STOW) should show a value of 1 when activated via a controlled input (Hand-held Pendant, Magnetic, Remote Entry or 3rd Station Controls). Refer to the service manual for additional switch and sensor information.

Pump Module Control Board

[illegible]